

Table 1. Measured results from the neural network

All flow rates are in l/min

Actual water flow	Measured water flow	Error (l/min)	STD	Actual air flow	Measured air flow	Error (l/min)	STD
320.50	321.624	1.124	0.5428	0	0.491	0.491	0.2584
280.00	280.219	0.219		0	-0.124	-0.124	
240.00	240.366	0.366		0	-0.250	-0.250	
180.00	180.166	0.166		0	-0.097	-0.097	
77.40	77.423	0.023		0	-0.070	-0.070	
320.50	320.666	0.166	1.3057	5	5.536	0.536	0.2425
280.00	281.439	1.439		5	5.026	0.026	
240.00	239.996	-0.004		5	4.986	-0.014	
180.00	182.510	2.510		5	4.920	-0.080	
77.00	77.351	0.351		5	5.009	0.009	
320.50	320.650	0.150	1.3033	10	9.946	-0.054	0.6778
280.00	281.495	1.495		10	9.556	-0.444	
240.00	242.188	2.188		10	10.592	0.592	
180.00	180.237	0.237		10	9.909	-0.091	
79.70	78.520	-1.180		10	11.319	1.319	
320.50	320.284	-0.216	1.4548	15	15.069	0.069	0.4620
280.00	280.064	0.064		15	15.128	0.128	
240.00	241.536	1.536		15	15.115	0.115	
180.00	177.177	-2.823		15	15.958	0.958	
77.80	78.250	0.450		15	15.339	0.339	
320.50	320.593	0.093	1.8134	20	19.976	-0.024	0.1610
280.00	278.762	-1.238		20	19.873	-0.127	
240.00	236.788	-3.213		20	19.961	-0.039	
180.00	182.115	2.115		20	19.963	-0.037	
77.40	77.726	0.326		20	19.668	-0.332	
320.50	322.012	1.512	2.4848	25	24.577	-0.423	1.2579
280.00	281.328	1.328		25	25.230	0.230	
240.00	234.891	-5.109		25	27.627	2.627	
180.00	180.815	0.815		25	25.788	0.788	
77.99	77.768	-0.222		25	24.605	-0.395	

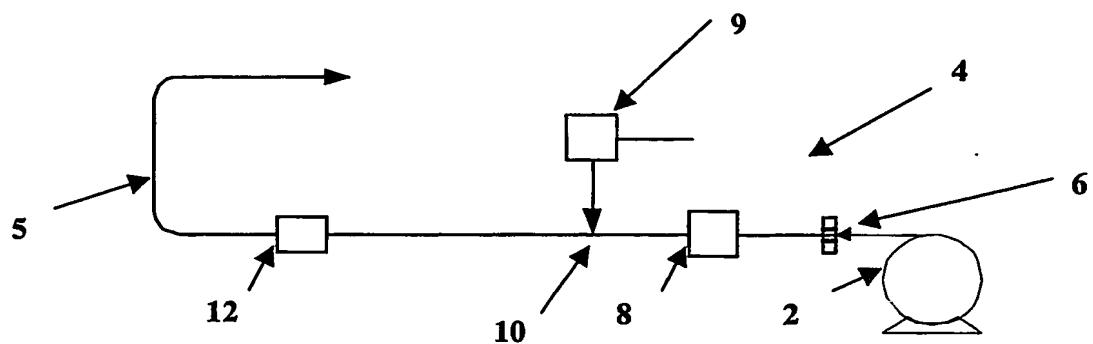


Figure 1

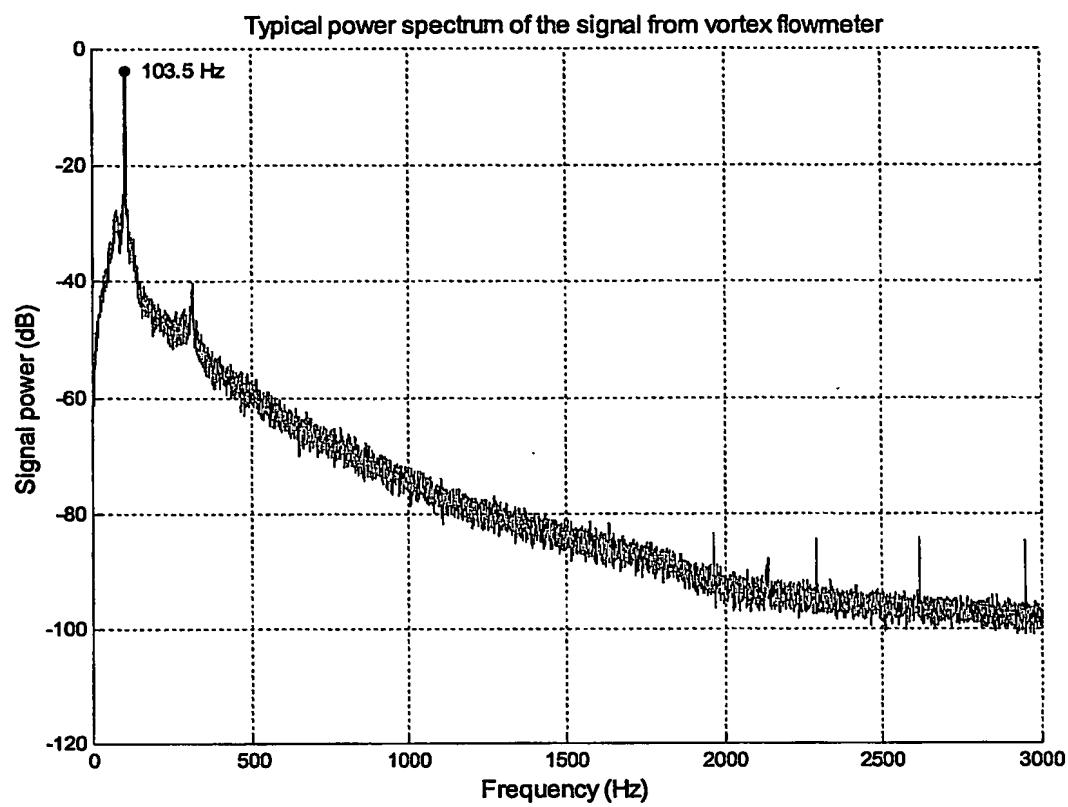


Figure 2

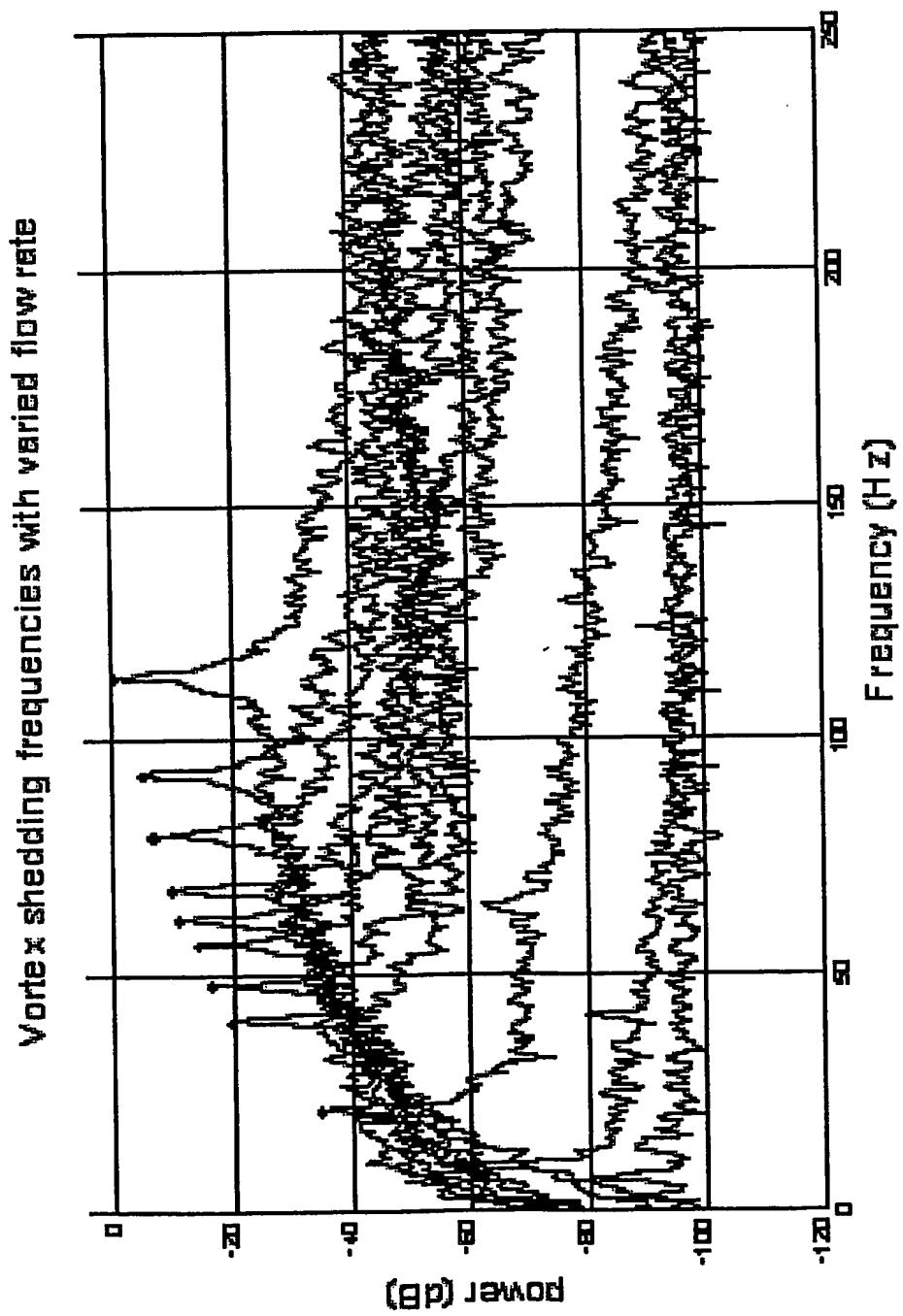


Figure 3

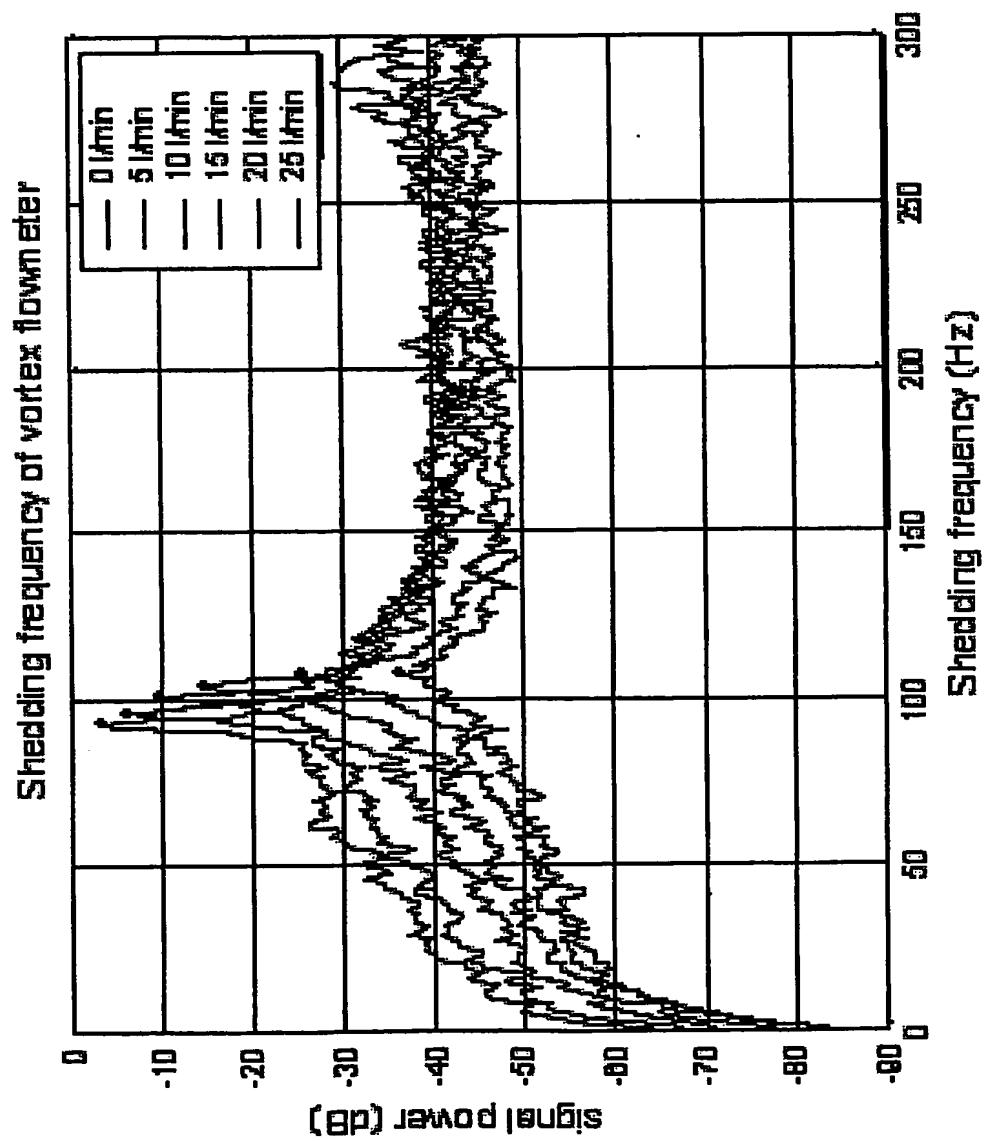
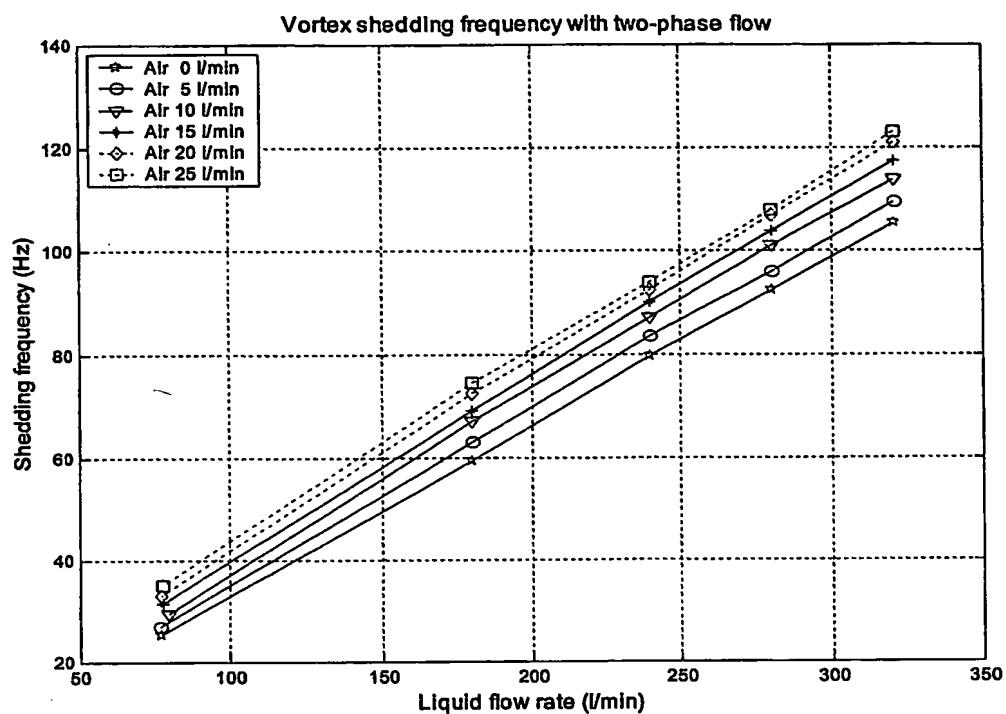
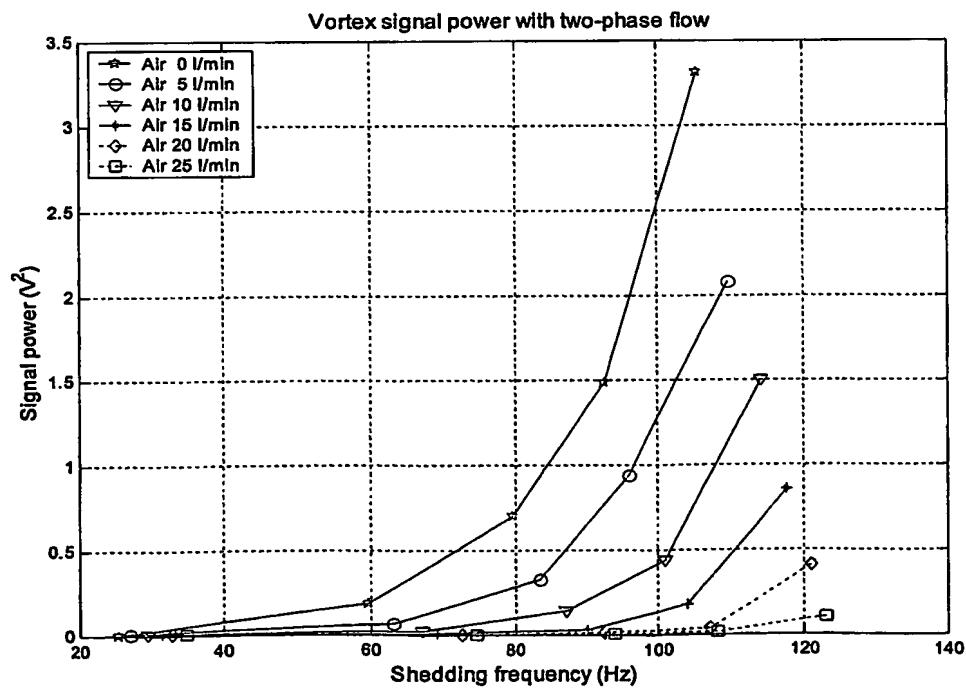


Figure 4

**Figure 5****Figure 6**

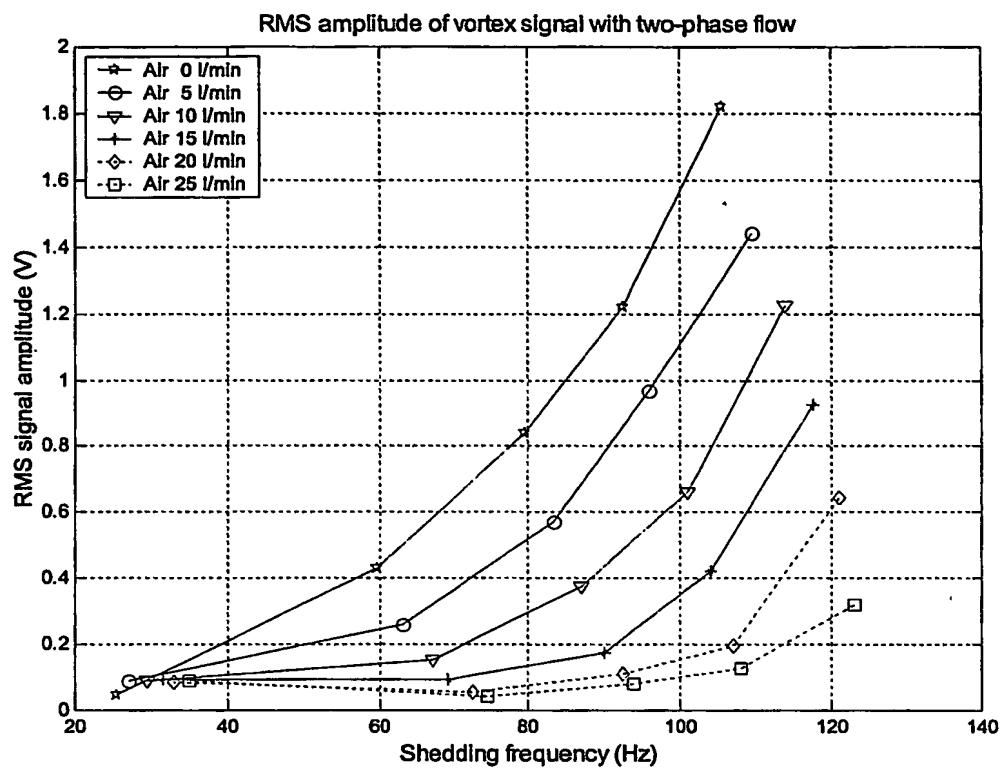


Figure 7

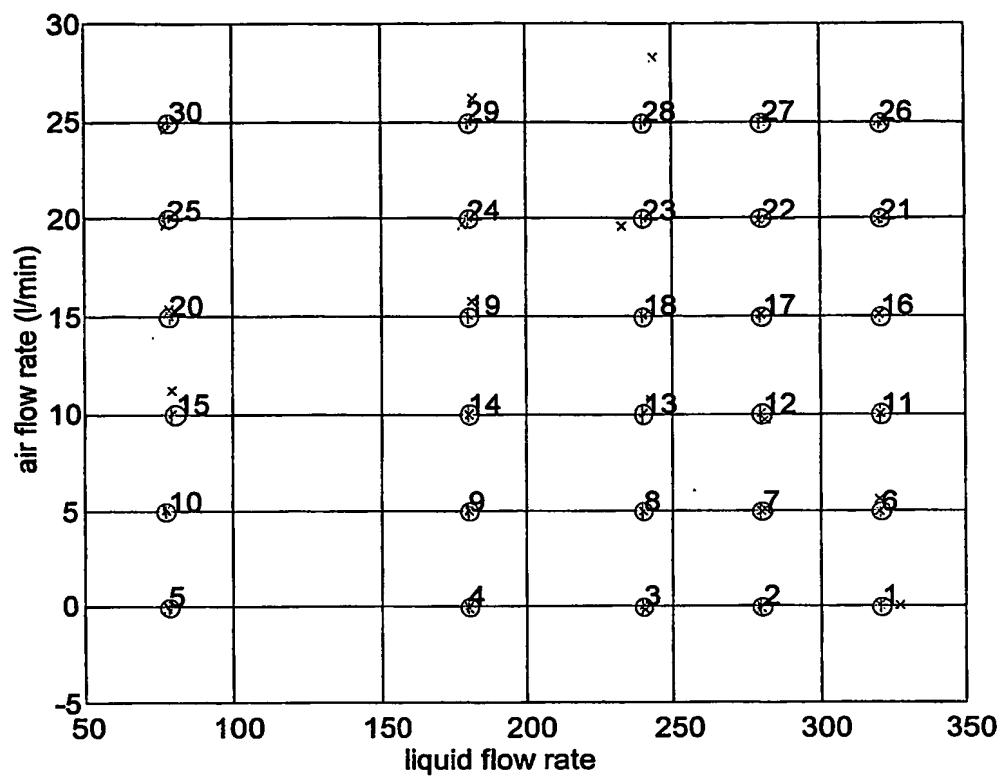


Figure 8

○ --- training target

* --- Neural output after training

x --- Neural output after testing

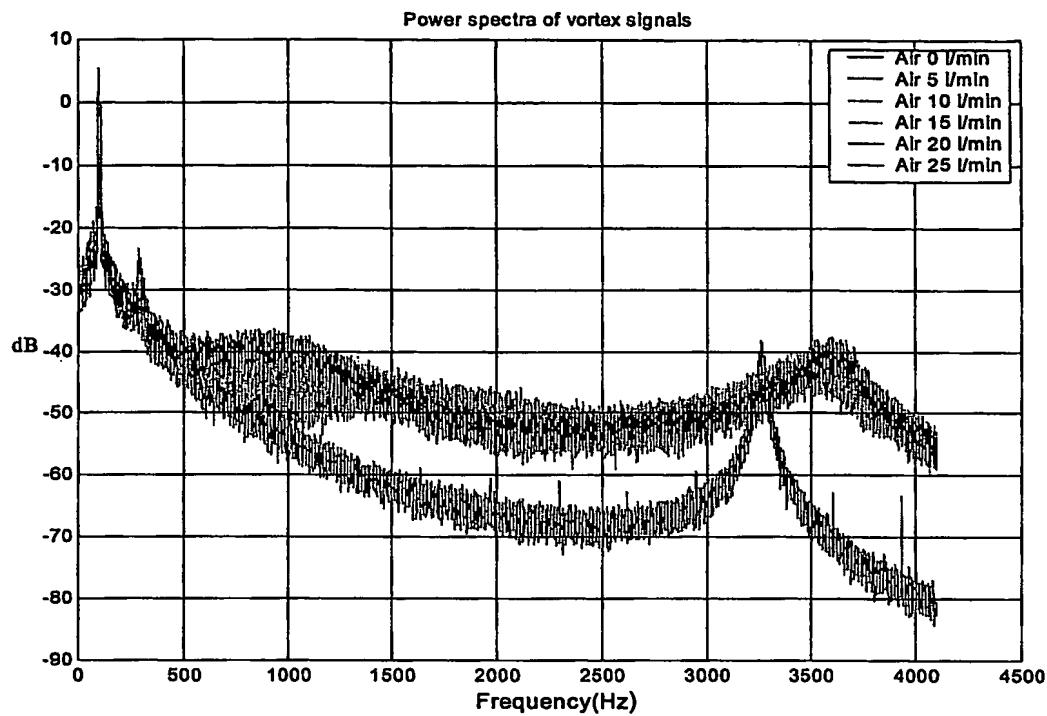


Figure 9

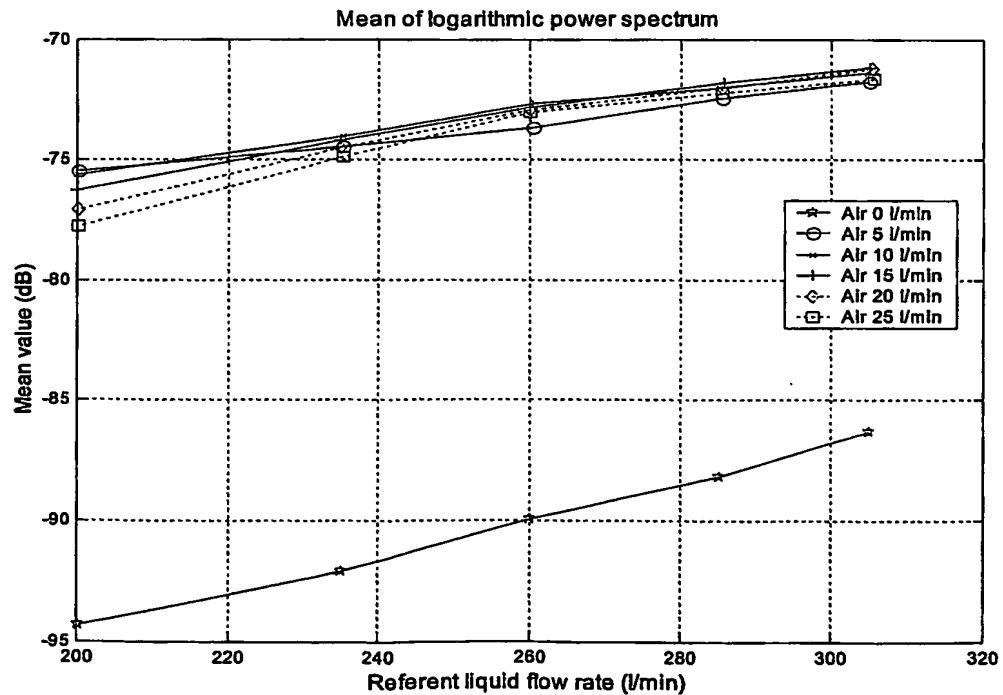


Figure 10

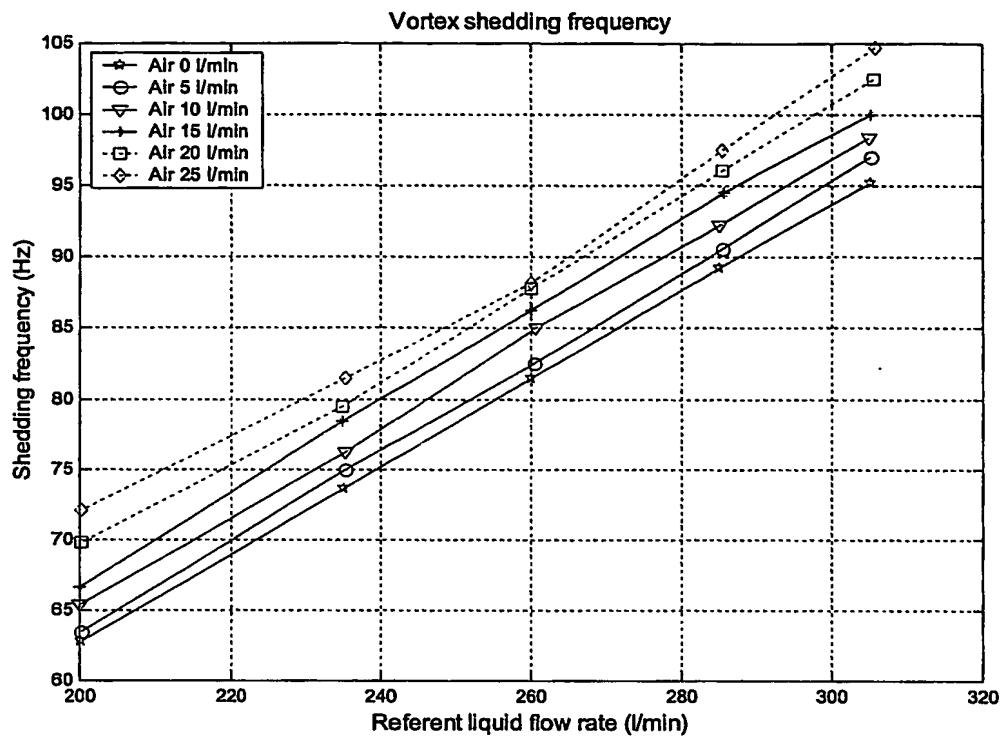


Figure 11

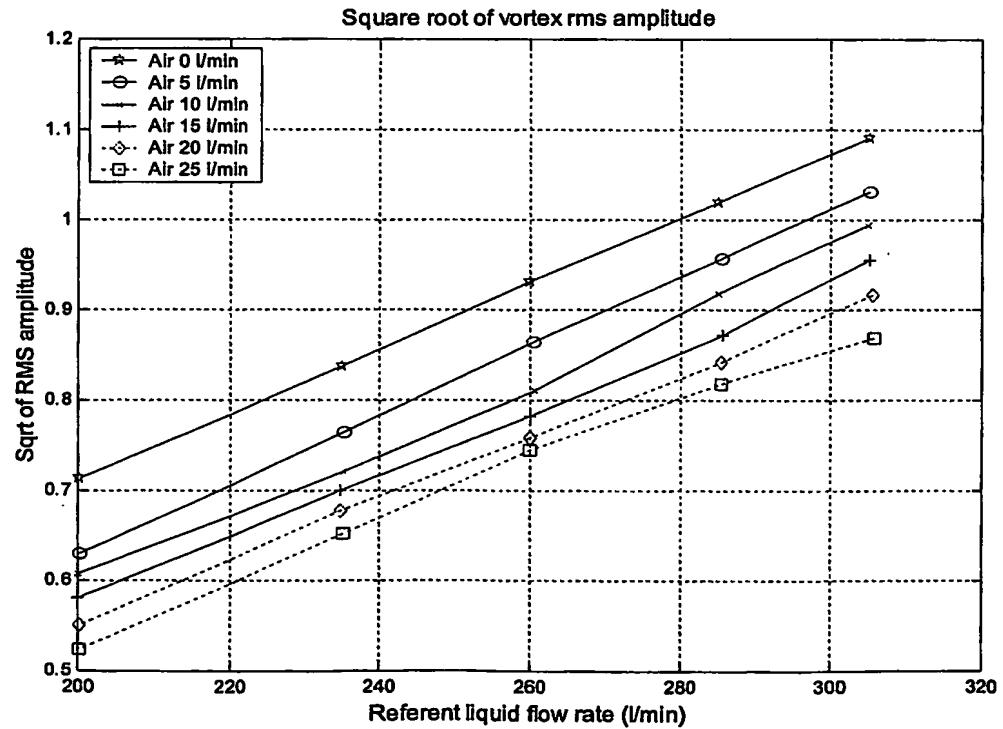


Figure 12

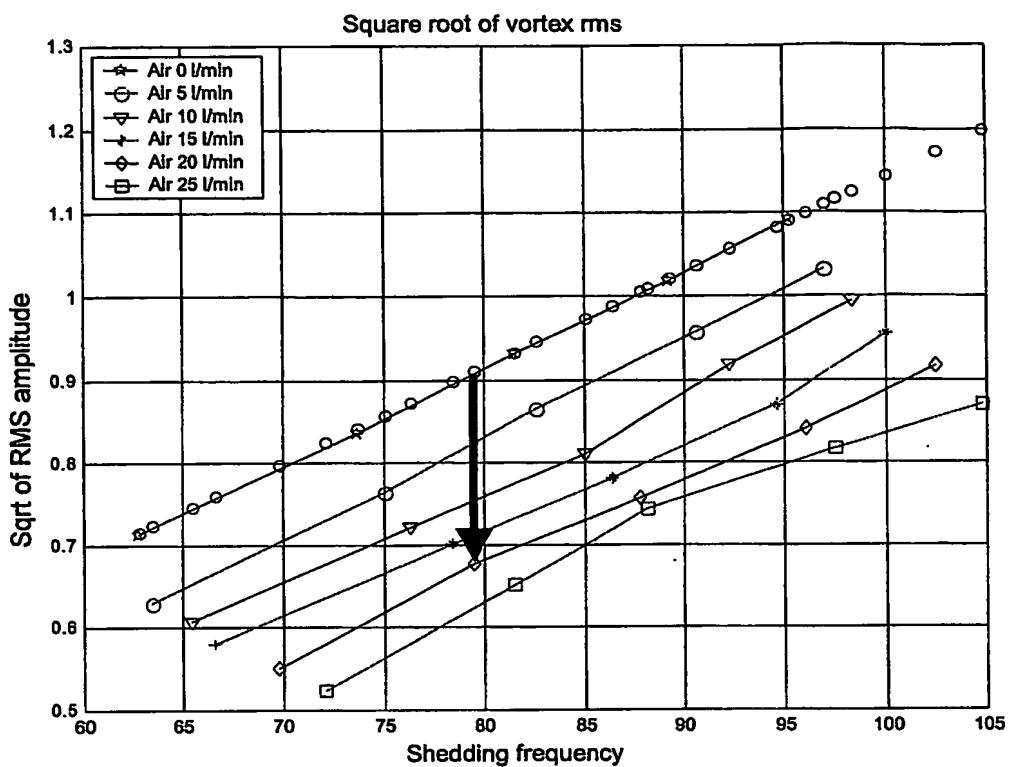


Figure 13

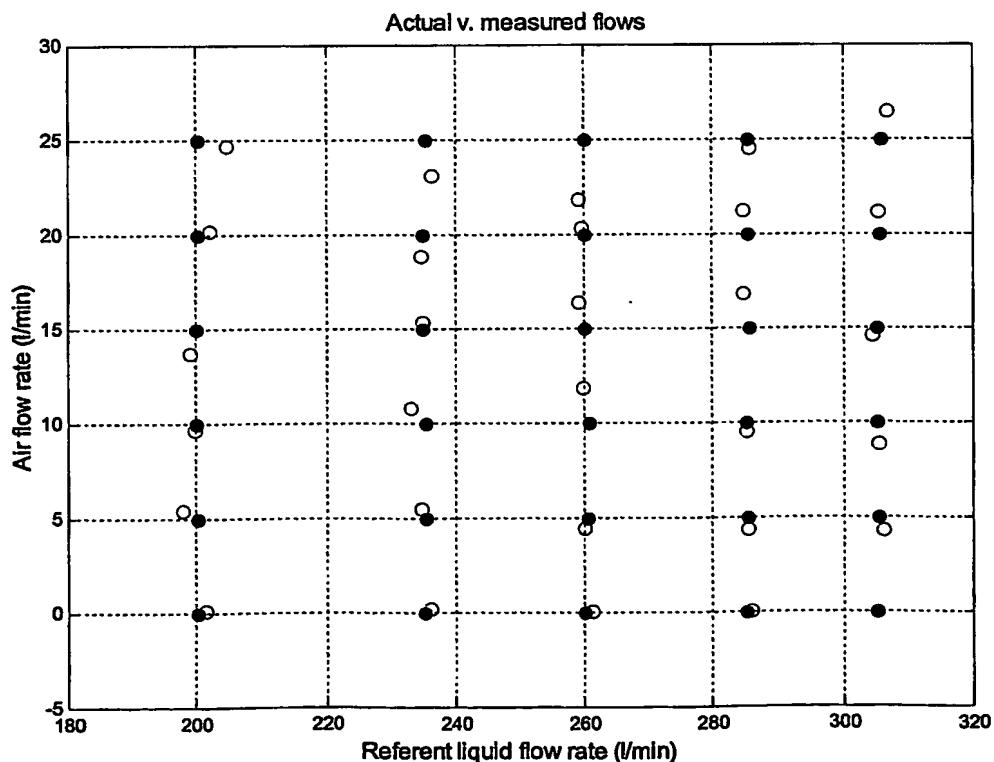


Figure 14

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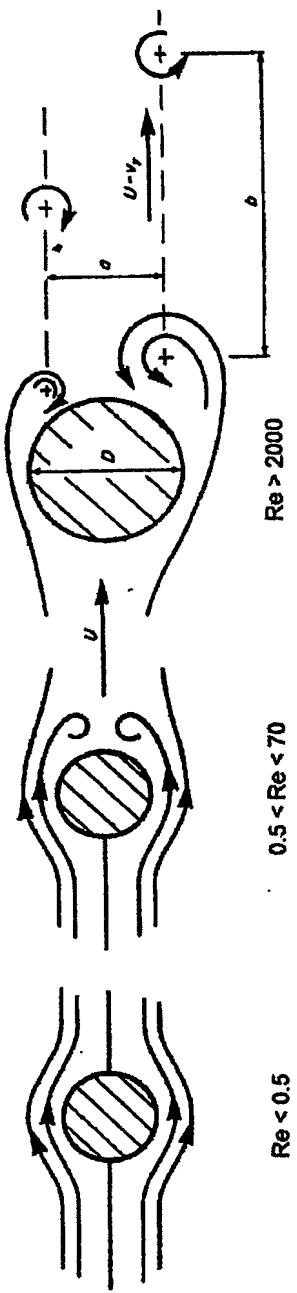


Figure 15